

REMARKS

I. Status of the Claims

Claims 1-15 are pending.

II. Response to the Objection because of the Informality

Applicants thank the Examiner and amend the specification as suggested. Applicants respectfully ask the Examiner to enter the amendment and withdraw the objection.

III. Response to the Rejection under 35 U.S.C. § 103(a) based on Wang in view of Meyer and Marks

Applicants traverse the rejection of claims 1-15 under 35 U.S.C. § 103(a) based on Wang et al. (U.S. Pat. No. 6,818,713) in view of Meyer et al. (U.S. Pat. No. 6,642,326) and Marks et al. (U.S. Pat. No. 5,578,690) and respectfully ask the Examiner to reconsider and withdraw the rejection in view of the following remarks.

First, the references are not properly combinable. The Examiner says that the references are "analogous" because they all relate to metallocene-catalyzed olefin polymerizations. Wang uses a bridged indenoindolyl complex having open architecture, i.e., the same kind of complex used in Applicants' claimed process, while Marks uses cyclopentadienyl catalysts and Meyer uses boraaryl non-metallocene catalysts. A skilled person recognizes these catalysts as non-equivalents. Moreover, without hindsight and the benefit of Applicants' disclosure, a skilled person has no incentive to combine the marginally related references. All relate to olefin polymerization, but only Wang discloses the specific catalyst type claimed by Applicants. To improve on a polymerization that uses a bridged indenoindolyl complex having open architecture, a skilled person would rely principally on the now-considerable literature of indenoindolyl catalysts.

As noted by the Examiner, Wang teaches indenoindolyl catalysts but not the use of a hydrosilane. The Examiner seeks to bridge the gap with teachings from Marks and Meyer.

Marks teaches the use of conventional metallocenes rather than Applicants' bridged indenoindolyl complex. A skilled person has no particular motive to modify Marks's teachings by using a bridged indenoindolyl complex having open architecture instead of a conventional metallocene. In fact, Marks actually teaches away from Applicants' claimed process (column 7, lines 13-19):

From Table 1 it can be seen that, for a given catalyst, increasing the PhSiH₃ concentration resulted in the gradual decrease of the polymer molecular weight (Examples 1-5). When these data were plotted, an essentially linear inverse correlation between M_n and silane concentration was observed, clearly indicating that PhSiH₃ acts as a true chain transfer reagent.

Marks teaches that adding a hydrosilane lowers molecular weight; this is exactly the opposite of the effect desired by Applicants and achievable through their claimed process. A skilled person reading Marks would not be motivated to add hydrosilanes to a bridged indenoindolyl complex having open architecture to increase polymer molecular weight. Thus, it is apparent that even the combined teachings of Wang and Marks would not make Applicants' claimed process obvious. Nor does Meyer help.

Meyer adds a hydrosilane to a polymerization performed with a boraaryl complex to increase activity. The hydrosilane has no clear effect on molecular weight in Meyer's system. A skilled person would not be motivated to use the hydrosilane--used by Meyer with a boraaryl catalyst--in combination with a bridged indenoindolyl complex having open architecture. A skilled person would not consider these systems analogous and indeed they are not. With a boraaryl catalyst, the hydrosilane improves activity but has no clear effect on molecular weight (see Meyer at column 5, Table 1). Applicants found that using a hydrosilane with a bridged indenoindolyl complex having open architecture does

not improve activity, but it does increase molecular weight remarkably (see page 18, Table 1 of the application).

In sum, Wang, Marks, and Meyer are not properly combinable. Even their combined teachings, however, would not make it obvious to use a hydrosilane with a bridged indenoindolyl complex having open architecture. Wang does not use a hydrosilane, Marks teaches away from Applicants' claimed process, and Meyer shows only an activity increase when a hydrosilane is added to a boraaryl complex. The remarkable increase in molecular weight observed by Applicants is even more surprising in light of the references because the effect is not seen in Meyer and the opposite effect is seen in Marks. Applicants respectfully ask the Examiner to reconsider and withdraw the 103(a) rejection.

IV. Conclusion

Applicants respectfully ask the Examiner to enter the amendment, withdraw the objection, reconsider and withdraw the rejection under Section 103(a), and pass the case to issue. Applicants invite the Examiner to telephone their attorney at (610) 359-2276 if he believes that a discussion of the application might be helpful.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on March 31, 2005.

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March 31, 2005